No. 823,628. PATENTED JUNE 19, 1906.

J. D. O'BRIEN.

MACHINE FOR WEAVING SHEET LATHING.

APPLICATION FILED OCT. 10, 1904.

3 SHEETS—SHEET 1.

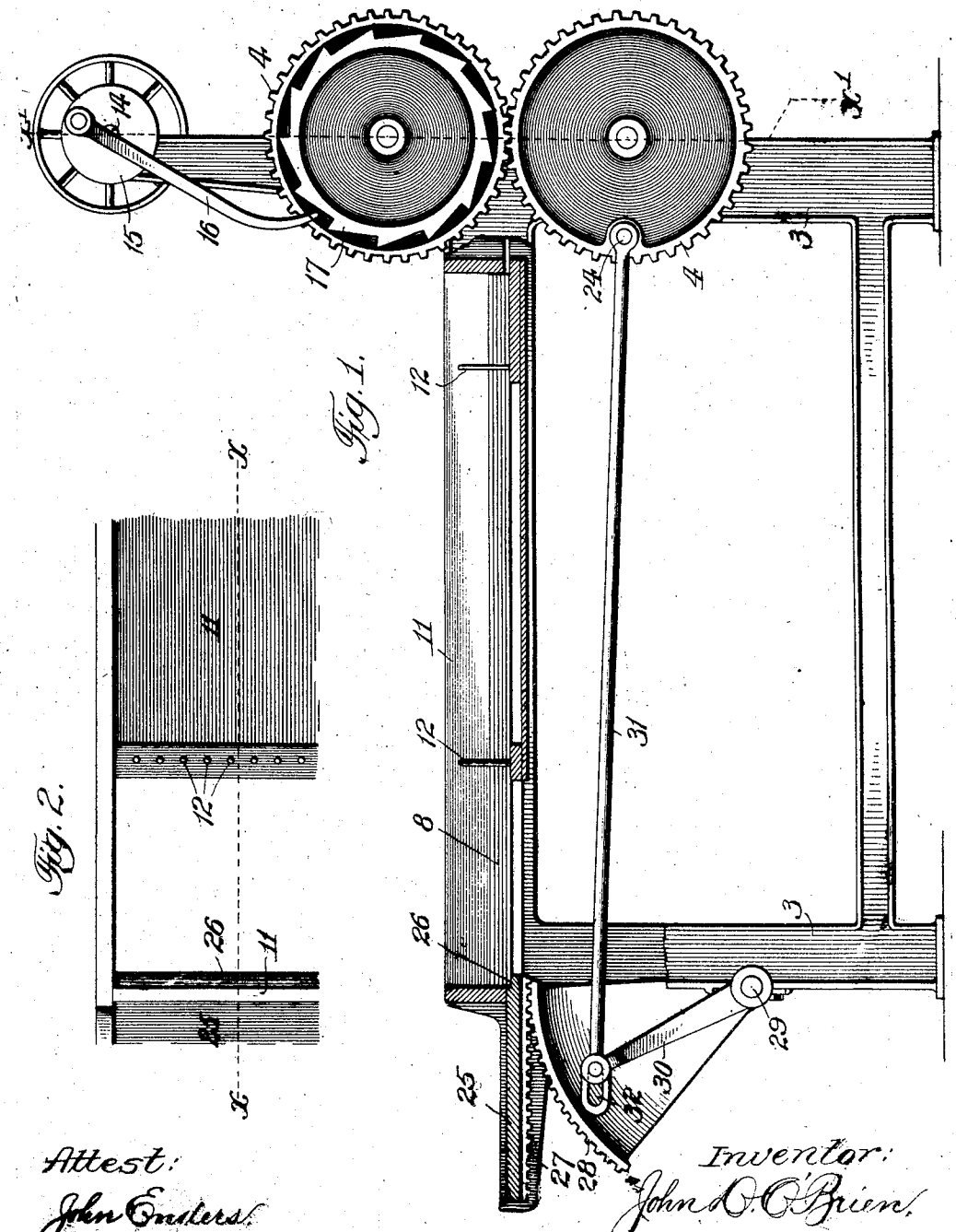


Fig. 1.

Fig. 2.

Attest:
John Enders.
M. A. Holmes.

Inventor:
John D. O'Brien.
by Robert Burns
Attorney.

No. 823,628. PATENTED JUNE 19, 1906.

J. D. O'BRIEN.

MACHINE FOR WEAVING SHEET LATHING.

APPLICATION FILED OCT. 10, 1904.

3 SHEETS—SHEET 2.

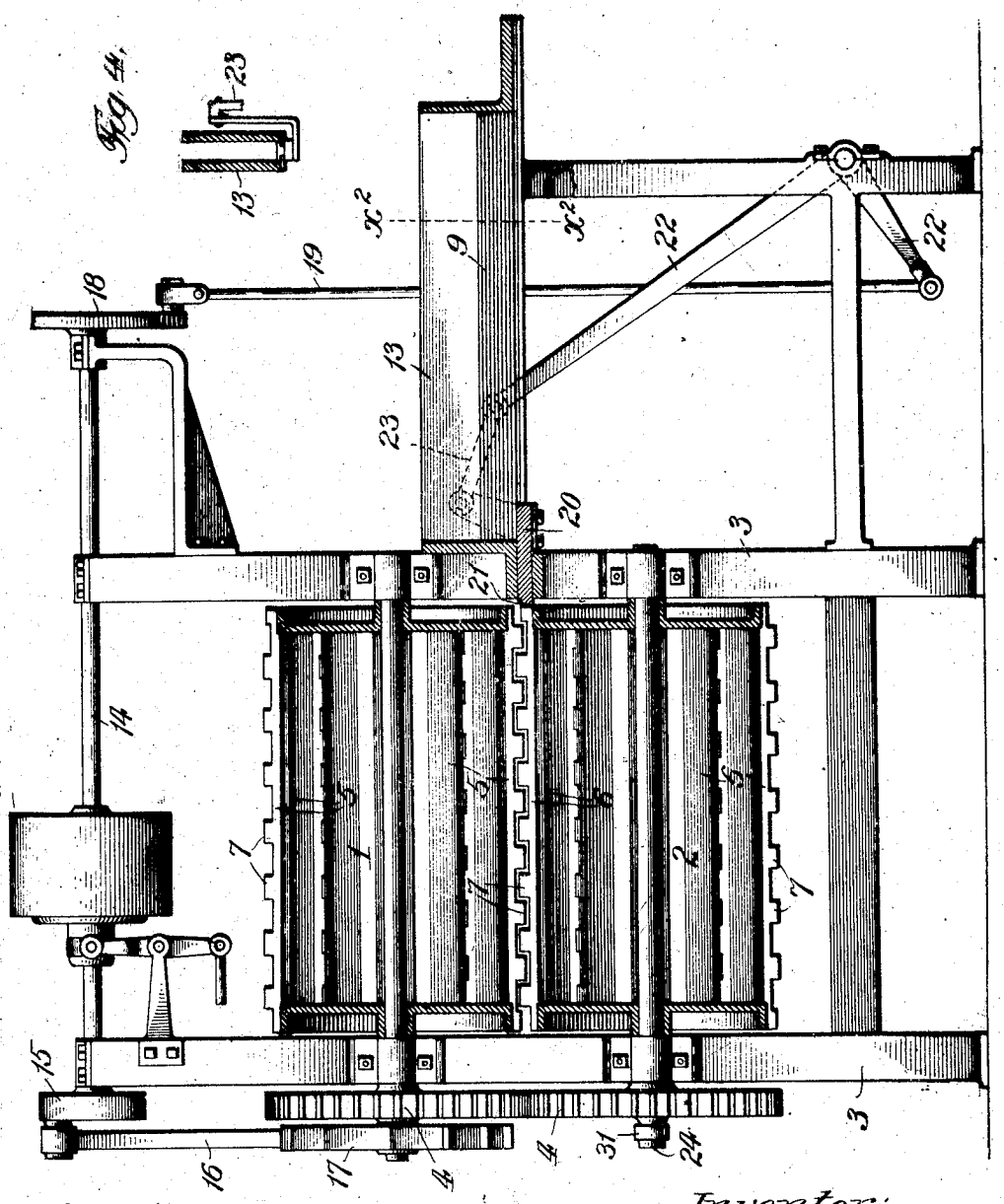


Fig. 3.

Attest:
John Enders.
M. A. Holmes

Inventor:
John D. O'Brien.
by Roberts Barnes
Attorneys

No. 823,628. PATENTED JUNE 19, 1906.

J. D. O'BRIEN.

MACHINE FOR WEAVING SHEET LATHING.

APPLICATION FILED OCT. 10, 1904.

3 SHEETS—SHEET 3.

Fig. 6.

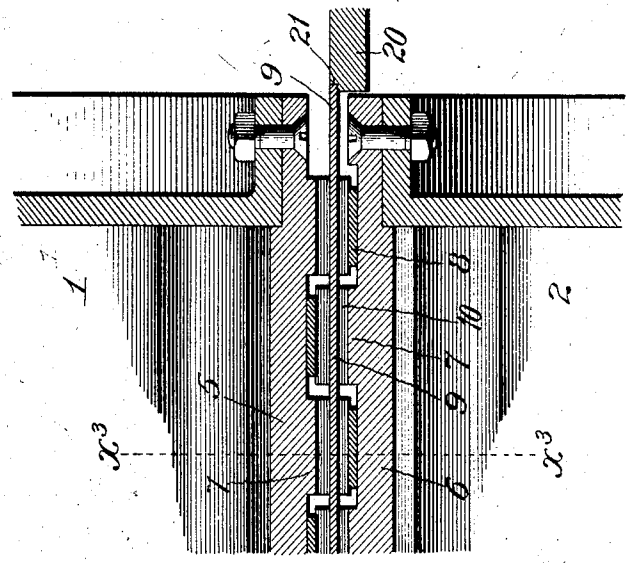
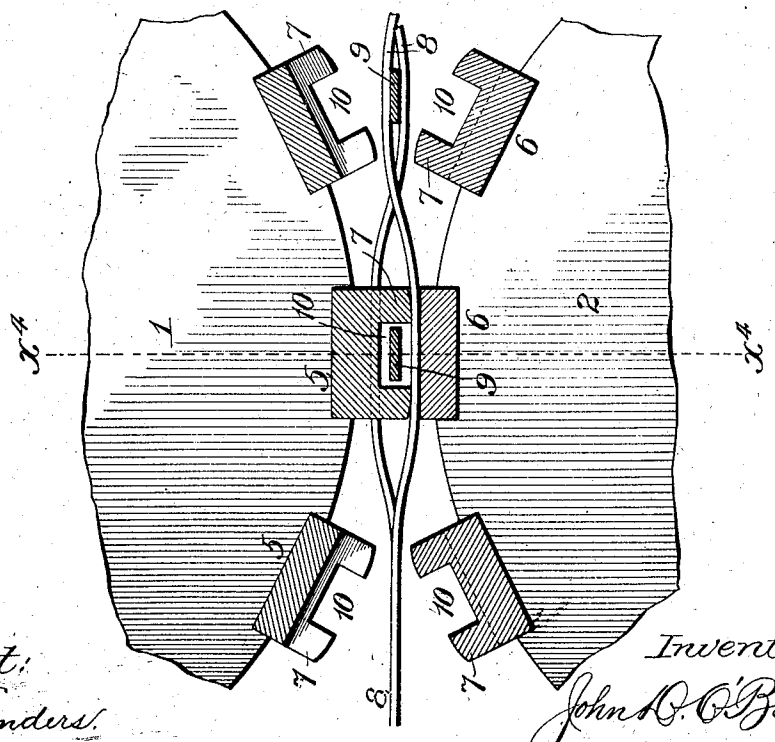


Fig. 5.



Attest:
John Enders.
M. A. Holmes.

Inventor:
John D. O'Brien,
by Robert Burns
Attorney

UNITED STATES PATENT OFFICE.

JOHN D. O'BRIEN, OF ST. LOUIS, MISSOURI, ASSIGNOR TO NATIONAL PATENT LATH AND MANUFACTURING COMPANY, A CORPORATION OF MISSOURI.

MACHINE FOR WEAVING SHEET-LATHING.

No. 823,628. Specification of Letters Patent. Patented June 19, 1906.

Application filed October 10, 1904. Serial No. 227,822.

To all whom it may concern:

Be it known that I, JOHN D. O'BRIEN, a citizen of the United States of America, and a resident of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Machines for Weaving Sheet-Lathing, of which the following is a specification.

This invention relates to loom mechanisms for weaving sheet-lathing for building plasterers' use, and more especially to the type of such mechanisms which constitutes the subject-matter of my prior patent, No. 765,191, dated July 19, 1904; and the present improvement has for its object to provide a simple and efficient structural formation and combination of parts wherewith the weaving together of the warp and weft strips composing the sheet-lathing is attained in a continuous and automatic manner, as will hereinafter more fully appear.

In the accompanying drawings, Figure 1 is a side elevation with parts in section on line $x\,x$, Fig. 2, of a weaving-machine embodying the present invention. Fig. 2 is a fragmentary plan view of the holding-hopper for the thin flat strips that constitute the warp-strips of sheet-lathing. Fig. 3 is a front elevation with parts in section on line $x'\,x'$, Fig. 1. Fig. 4 is a detail cross-section at line $x^2\,x^2$, Fig. 3, of the holding-hopper for the series of flat strips that contsitute the transverse weft-strips of the sheet-lathing. Fig. 5 is an enlarged sectional elevation at line $x^3\,x^3$, Fig. 6, of a plurality of pairs of rows of shed-forming projections of the present mechanism. Fig. 6 is an enlarged detail sectional elevation of the same at line $x^4\,x^4$, Fig. 5.

Similar numerals of reference indicate like parts in the several views.

Referring to the drawings, 1 and 2 represent a pair of carrying rollers or drums, the carrying-shafts of which are journaled in the main frame 3 of the machine and connected together by spur-gears 4 to rotate in unison.

5 and 6 are a plurality of rows of shed-forming projections arranged longitudinally and in spaced relation upon the respective peripheries of the drums aforesaid with the projections on one drum or roller intermeshing with the projections on the other drum or roller, as shown. Such shed-forming projections have a similar structural formation to the shed-forming projections of my prior patent aforesaid and involve features as follows: 7 represents rectangular projections arranged in rows along the opposed peripheries of the carrying-drums 1 and 2. Such projections are of a width slightly greater than the width of the warp-strips 8 of the lathing-sheet and are separated by intervening recesses each of which has a width somewhat greater than that of the aforesaid projections, so as to permit of the free movement of the projections of one row in the recesses of the row in apposition, as illustrated more particularly in Figs. 5 and 6. Each row of projections 7 will also have an alternated or staggered arrangement with relation to the series of such projections on the next adjacent row in both a longitudinal and transverse direction in the machine and so that with the movement of the two series of projections in their circular paths the series of interposed warp-strips 8 will have a sinuous form imparted to each strip of the series and with the sinuosity of one strip alternated or staggered with relation to the sinuosity of the adjacent strip or strips to enable the transverse weft-strips of the sheet-lathing being pushed into position between the warp-strips in the act of forming an interlaced lathing-sheet with the present mechanism.

10 represents alined recesses or channels formed centrally in the series of projections 7, as in my former patented construction. Such recesses extend longitudinally of the shed-forming projections and form ways for the passage and guidance of the weft-strips 9 in the insertion of the same into interlaced position between the warp-strips 8, as above set forth.

11 is a stationary hopper arranged back of the carrying-drums with its bottom in line with the horizontal line of division between said drums. Such hopper is adapted to contain the required number of piles of warp-strips 8, which are held in proper separated relation by series of transversely-arranged temple-pins 12, attached to the bottom of said hopper.

13 is a stationary hopper arranged transversely of the machine with its bottom in line with the line of division between the carrying-drums 1 and 2 and also in line with the aforesaid recesses or channels 10 of the pair

of shed-forming projections that are in apposition, as illustrated in Figs. 5 and 6. Such hopper is adapted to contain a pile of weft-strips 9, the lowermost ones of which are successively fed into the aforesaid channels 10 in a continued operation of the mechanism, as hereinafter more fully set forth.

14 is the driving-shaft of the machine, receiving rotation from any suitable power source and provided with the usual pulleys, clutches, and other ordinary controlling appliances. 15 is a crank-disk carried on one end of said shaft and provided with a pawl 16, adapted to receive a reciprocating movement from said crank-disk and to act as an operating dog or pawl in imparting an intermittent or step-by-step rotation to the drums carrying the series of shed-forming projections, as hereinafter set forth. 17 is a ratchet-disk secured to the carrying-shaft of one of the aforesaid carrying-drums and provided with ratchet-teeth equal in number to the series of rows of shed-forming projections carried by the drum to the shaft of which said ratchet-disk is fixed. Such ratchet-disk receives intermittent rotation from the reciprocating pawl 16 aforesaid, and the arrangement is such that with each reciprocation of the pawl 16 the carrying-drums will be moved in their circular path a distance sufficient to bring a succeeding row of shed-forming projections into the position just occupied by a preceding row of shed-forming projections. The scope of this part of the present invention embraces the substitution for the above-described mechanism of any other usual and suitable mechanism for imparting the described intermittent rotary motion to the carrying-drums from a driving-shaft having constant rotation. 18 is a crank-disk carried at the other end of the driving-shaft 14 and provided with a pitman or link 19, having operative engagement with a reciprocating slide, by which the weft-strips 9 are pushed from the hopper 13 into place between the rows of shed-forming projections in apposition and between the warp-strips 8 in the sinuous condition imposed thereon by the said projections.

20 is the reciprocating slide, above referred to, moving in the bottom portion of the weft-strip hopper 13 and having a forward ledge 21, adapted to engage behind the rear end of the lowermost weft-strip in said hopper, so that in a forward movement of said slide such weft-strip will be pushed into place between warp-strips, as above described.

22 is a bell-crank lever, one arm of which is operatively connected to the slide 20 by a radius-link 23, while the other arm of said lever is operatively connected to the pitman 19 of the crank-disk 18, before described and as illustrated in Fig. 3.

24 is a crank-pin carried on one side of one of the connecting gear-wheels 4 of the carrying-drums aforesaid and having operative connections with a reciprocating slide, by which a series of the warp-strips 8 are pushed forward for engagement by the circular series of shed-forming projections in a continued operation of the machine.

25 is the reciprocating slide, just referred to, moving in the bottom portion of the warp-strip hopper 11 and having a forward ledge 26, adapted to engage behind the rear ends of the lowermost of the piles of warp-strips in said hopper, so that in a forward movement of said slide the lowermost series of the warp-strips will be pushed forward into the circular path of the shed-forming projections to be engaged thereby.

27 is one of several toothed racks on the under side of the feed-slide 25, and 28 is one of several sectors carried by a shaft 29, journaled on the main frame, such sectors being in operative engagement with said racks, as illustrated in Fig. 1.

30 is a crank-arm carried by the shaft 29 and operatively connected by a pitman or link 31 with the crank-pin 24, before described.

32 is an elongated slot forming one of the connecting-eyes of the pitman 31 aforesaid and adapted to permit a period of rest of the reciprocating slide 25 preceding the forward and backward movements of the same.

The particular mechanism shown in the drawings is adapted to produce a sheet of lathing of a predetermined size with one revolution of the series of shed-forming projections, and the period of rest above referred to in the reciprocating movement of the feeding-slide 25 is equal in extent to one period of movement of a row of the shed-forming projections in their circular path, so that a gap equal in extent to the distance between adjacent rows of said projections will be produced between the rear end of the sheet of lathing just finished and the forward end of the succeeding sheet of lathing in the continued operation of the machine.

The time arrangement or periodicity of the different mechanisms with relation to each other is as follows: The feeding-slide 25 is so timed as to feed the series of warp-strips into the circular path of the shed-forming projections while such projections are receiving an intermittent forward step and immediately subsequent to the discharge of a finished sheet of lathing from between the series of said projections. The feeding-slide 20 is so timed as to feed a weft-strip into an interlaced position, while the shed-forming projections are in a condition of rest preceding an intermittent forward movement in their circular paths.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1 In a machine for weaving sheet-lathing

and the like, the combination of two series of rows of shed-forming projections arranged in apposition, each row comprising a number of separated projections arranged in staggered relation to the like projections of the next adjacent rows, and means for imparting intermittent travel to both series of projections in curved and divergent paths, substantially as set forth.

2. In a machine for weaving sheet-lathing and the like, the combination of two series of rows of shed-forming projections arranged in apposition, each row comprising a number of separated projections each formed with a central recess, the projections of each row having a staggered relation to the like projections of the next adjacent rows, and means for imparting intermittent travel to both series of projections in curved and divergent paths, substantially as set forth.

3. In a machine for weaving sheet-lathing and the like, the combination of two series of rows of shed-forming projections arranged in apposition, each row comprising a number of separated projections arranged in staggered relation to the next adjacent rows, means for feeding a series of warp-strips between the two series of rows, and means for imparting intermittent travel to both series of projections in curved and divergent paths, substantially as set forth.

4. In a machine for weaving sheet-lathing and the like, the combination of two series of rows of shed-forming projections arranged in apposition, each row comprising a number of separated projections each formed with a central recess, the projections of each row having a staggered relation to the like projections of the next adjacent rows means for feeding a series of warp-strips between the two series of rows, and means for imparting intermittent travel to both series of projections in curved and divergent paths, substantially as set forth.

5. In a machine for weaving sheet-lathing and the like, the combination of two series of rows of shed-forming projections arranged in apposition, each row comprising a number of separated projections arranged in staggered relation to the like projections of the next adjacent rows, means for feeding a single weft-strip between the two series of rows, and means for imparting intermittent travel to both series of projections in curved and divergent paths, substantially as set forth.

6. In a machine for weaving sheet-lathing and the like, the combination of two series of rows of shed-forming projections arranged in apposition, each row comprising a number of separated projections each formed with a central recess, the projections of each row having a staggered relation to the like projections of the next adjacent rows, means for feeding a single weft-strip between the two series of rows, and means for imparting intermittent travel to both series of projections in curved and divergent paths, substantially as set forth.

7. In a machine for weaving sheet-lathing and the like, the combination of two series of rows of shed-forming projections arranged in apposition, each row comprising a number of separated projections arranged in staggered relation to the like projections of the next adjacent rows, means for feeding a series of warp-strips between the two series of rows, means for feeding a single weft-strip between the two series of rows, and means for imparting intermittent travel to both series of projections in curved and divergent paths, substantially as set forth.

8. In a machine for weaving sheet-lathing and the like, the combination of two series of rows of shed-forming projections arranged in apposition, each row comprising a number of separated projections each formed with a central recess, the projections of each row having a staggered relation to the like projections of the other next adjacent rows, means for feeding a series of warp-strips between the two series of rows, means for feeding a single weft-strip between the two series of rows, and means for imparting intermittent travel to both series of projections in curved and divergent paths, substantially as set forth.

9. In a machine for weaving sheet-lathing and the like, the combination of two circularly-arranged series of rows of shed-forming projections, each row comprising a number of separated projections arranged in staggered relation to a series of like projections of the next adjacent rows in both a parallel and a transverse direction, and means for imparting intermittent travel to both series of projections, substantially as set forth.

10. In a machine for weaving sheet-lathing and the like, the combination of two circularly-arranged series of rows of shed-forming projections, each row comprising a number of separated projections each formed with a central recess, the projections of each row having a staggered relation to the series of like projections of the next adjacent rows in both a parallel and transverse direction, and means for imparting intermittent travel to both series of projections, substantially as set forth.

11. In a machine for weaving sheet-lathing and the like, the combination of two circularly-arranged series of rows of shed-forming projections, each row comprising a number of separated projections arranged in staggered relation to a series of like projections of the next adjacent rows in both a parallel and transverse direction, means for feeding a series of warp-strips between the two series of rows, and means for imparting intermittent travel to both series of projections, substantially as set forth.

12. In a machine for weaving sheet-lathing and the like, the combination of two circularly-arranged series of rows of shed-forming projections, each row comprising a number of separated projections each formed with a central recess, the projections of each row having a staggered relation to the series of like projections on the next adjacent rows in both a parallel and transverse direction, means for feeding a series of warp-strips between the two series of rows, and means for imparting intermittent travel to both series of projections, substantially as set forth.

13. In a machine for weaving sheet-lathing and the like, the combination of two circularly-arranged series of rows of shed-forming projections, each row comprising a number of separated projections arranged in staggered relation to a series of like projections of the next adjacent rows in both a parallel and transverse direction, means for feeding a single weft-strip between the pair of rows in apposition, and means for imparting intermittent travel to both series of projections, substantially as set forth.

14. In a machine for weaving sheet-lathing and the like, the combination of two circularly-arranged series of rows of shed-forming projections, each row comprising a number of separated projections each formed with a central recess, the projections of each row having a staggered relation to the series of like projections of the next adjacent rows in both a parallel and transverse direction, means for feeding a single weft-strip between the pairs of rows in apposition, and means for imparting intermittent travel to both series of projections, substantially as set forth.

15. In a machine for weaving sheet-lathing and the like, the combination of two circularly-arranged series of rows of shed-forming projections, each row comprising a number of separated projections arranged in staggered relation to a series of like projections of the next adjacent rows in both a parallel and transverse direction, means for feeding a series of warp-strips between the two series of rows, means for feeding a single weft-strip between the pair of rows in apposition, and means for imparting intermittent travel to both series of projections, substantially as set forth.

16. In a machine for weaving sheet-lathing and the like, the combination of two circularly-arranged series of rows of shed-forming projections, each row comprising a number of separated projections each formed with a central recess, the projections of each row having a staggered relation to the series of like projections of the next adjacent rows in both a parallel and transverse direction, means for feeding a series of warp-strips between the two series of rows, means for feeding a single weft-strip between the pair of rows in apposition, and means for imparting intermittent travel to both series of projections, substantially as set forth.

17. In a machine for weaving sheet-lathing and the like, the combination of a supporting-frame, a pair of drums journaled in apposition on said frame, rows of shed-forming projections secured in separated relation on the periphery of said drums, each row comprising a number of separated projections arranged in staggered relation to the projections of the next adjacent rows in both a parallel and transverse direction, and means for imparting intermittent rotation to the pair of drums, substantially as set forth.

18. In a machine for weaving sheet-lathing and the like, the combination of a supporting-frame, a pair of drums journaled in apposition on said frame, rows of shed-forming projections, secured in separated relation on the periphery of said drum, each row comprising a number of separated projections each formed with a central recess, the projections of each row having a staggered relation to the projections of the next adjacent rows in both a parallel and transverse direction, and means for imparting intermittent rotation to the pair of drums, substantially as set forth.

19. In a machine for weaving sheet-lathing and the like, the combination of a supporting-frame, a pair of drums journaled in apposition on said frame, rows of shed-forming projections secured in separated relation on the periphery of said drums, each row comprising a number of separated projections arranged in staggered relation to the projections of the next adjacent rows in both a parallel and transverse direction, means for feeding a series of warp-strips between the two series of rows, and means for imparting intermittent rotation to the pair of drums, substantially as set forth.

20. In a machine for weaving sheet-lathing and the like, the combination of a supporting-frame, a pair of drums journaled in apposition on said frame, rows of shed-forming projections secured in separated relation on the periphery of said drum, each row comprising a number of separated projections each formed with a central recess, the projections of each row having a staggered relation to the projections on the next adjacent rows in both a parallel and transverse direction, means for feeding a series of warp-strips between the two series of rows, and means for imparting intermittent rotation to the pair of drums, substantially as set forth.

21. In a machine for weaving sheet-lathing and the like, the combination of a supporting-frame, a pair of drums journaled in apposition on said frame, rows of shed-forming projections secured in separated relation on the periphery of said drums, each row comprising a number of separated projections arranged in staggered relation to the projec-

tions of the next rows in both a parallel and transverse direction, means for feeding a single weft-strip between the pair of rows in apposition, and means for imparting intermittent rotation to the pair of drums, substantially as set forth.

22. In a machine for weaving sheet-lathing and the like, the combination of a supporting-frame, a pair of drums journaled in apposition on said frame, rows of shed-forming projections secured in separated relation on the periphery of said drum, each row comprising a number of separated projections each formed with a central recess, the projections of each row having a staggered relation to the projections of the next adjacent rows in both a parallel and transverse direction, means for feeding a single weft-strip between the pair of rows in apposition, and means for imparting intermittent rotation to the pair of drums, substantially as set forth.

23. In a machine for weaving sheet-lathing and the like, the combination of a supporting-frame, a pair of drums journaled in apposition on said frame, rows of shed-forming projections secured in separated relation on the periphery of said drums, each row comprising a number of separated projections arranged in staggered relation to the projections of the next adjacent rows in both a parallel and transverse direction, means for feeding a series of warp-strips between the two series of rows, means for feeding a single weft-strip between the pairs of rows in apposition, and means for imparting intermittent rotation to the pair of drums, substantially as set forth.

24. In a machine for weaving sheet-lathing and the like, the combination of a supporting-frame, a pair of drums journaled in apposition on said frame, rows of shed-forming projections secured in separated relation at the peripheries of said drums, each row comprising a number of separated projections each formed with a central recess, the projections of each row having a staggered relation to the projections of the next adjacent rows in both a parallel and transverse direction, means for feeding a series of warp-strips between the two series of rows, means for feeding a single weft-strip between the pairs of rows in apposition, and means for imparting intermittent rotation to the pair of drums, substantially as set forth.

25. In a machine for weaving sheet-lathing and the like, the combination of two circularly-arranged series of rows of shed-forming projections, each row comprising a number of separated projections each formed with a central recess, the projections of each row having a staggered relation to the projections of the next adjacent rows in both a parallel and transverse direction, means for feeding a series of warp-strips between the two series of rows, the same comprising a containing-hopper for the warp-strips, a slide moving in the bottom of said hopper and adapted to feed the lowermost warp-strip out of said hopper, means for imparting reciprocation to said slide, and means for imparting intermittent travel to both series of projections, substantially as set forth.

26. In a machine for weaving sheet-lathing and the like, the combination of two circularly-arranged series of rows of shed-forming projections, each row comprising a number of separated projections each formed with a central recess, the projections of each row having a staggered relation to the projections of the next adjacent rows, in both a parallel and transverse direction, means for feeding a series of warp-strips between the two series of rows, the same comprising a containing-hopper for the warp-strips, a slide moving in the bottom of said hopper and adapted to feed the lowermost warp-strips out of said hopper, transversely-arranged temple-pins in said hopper, means for imparting reciprocation to said slide, and means for imparting intermittent travel to both series of projections, substantially as set forth.

27. In a machine for weaving sheet-lathing and the like, the combination of two circularly-arranged series of rows of shed-forming projections, each row comprising a number of separated projections each formed with a central recess, the projections of each row having a staggered relation to the projections of the next adjacent rows in both a parallel and transverse direction, means for feeding a single weft-strip between the pair of rows in apposition, the same comprising a containing-hopper for the weft-strips, a slide moving in the bottom of said hopper and adapted to feed the lowermost weft-strip out of said hopper, means for imparting reciprocation to said slide, and means for imparting intermittent travel to both series of projections, substantially as set forth.

28. A weaving-machine provided with co-operating rollers, having arranged about their peripheries coacting rows of shed-forming devices.

29. A weaving-machine, provided with co-operating rollers, having arranged about their peripheries coacting rows of shed-forming devices, the members of each row on one roller alternating with the members of a corresponding row on the other roller and being in alinement therewith as opposite rows successively occupy the pass between the rollers.

30. A weaving-machine, provided with co-operating rollers, having arranged about their peripheries coacting rows of shed-forming devices, said rows being staggered with respect to each other on each roller.

31. A weaving-machine, provided with co-operating rollers, having arranged about their peripheries coacting rows of shed-forming devices, said rows being staggered with respect

to each other on each roller, and presenting guideways longitudinally of the rollers for the passage of the weft, and transversely of the rollers for the passage of the warp.

32. A weaving-machine, provided with co-operating rollers, having arranged about their peripheries coacting rows of shed-forming devices having lateral projections to straddle the weft and bear upon the warp at the pass between the rollers.

33. A weaving-machine, provided with co-operating rollers, having arranged about their peripheries coacting rows of shed-forming devices, and an automatic feed for the warp and weft respectively.

34. A weaving-machine provided with co-operating rollers having coacting rows of shed-forming devices arranged about their peripheries, intermeshing gears mounted on the roller-shafts, a ratchet on one of said shafts, a driving-pawl coöperating with said ratchet, and means for operating said driving-pawl; substantially as described.

Signed at St. Louis, Missouri, this 3d day of October, 1904.

JOHN D. O'BRIEN.

Witnesses:
JAS. H. SMITH,
FRANK B. MCKENNA.