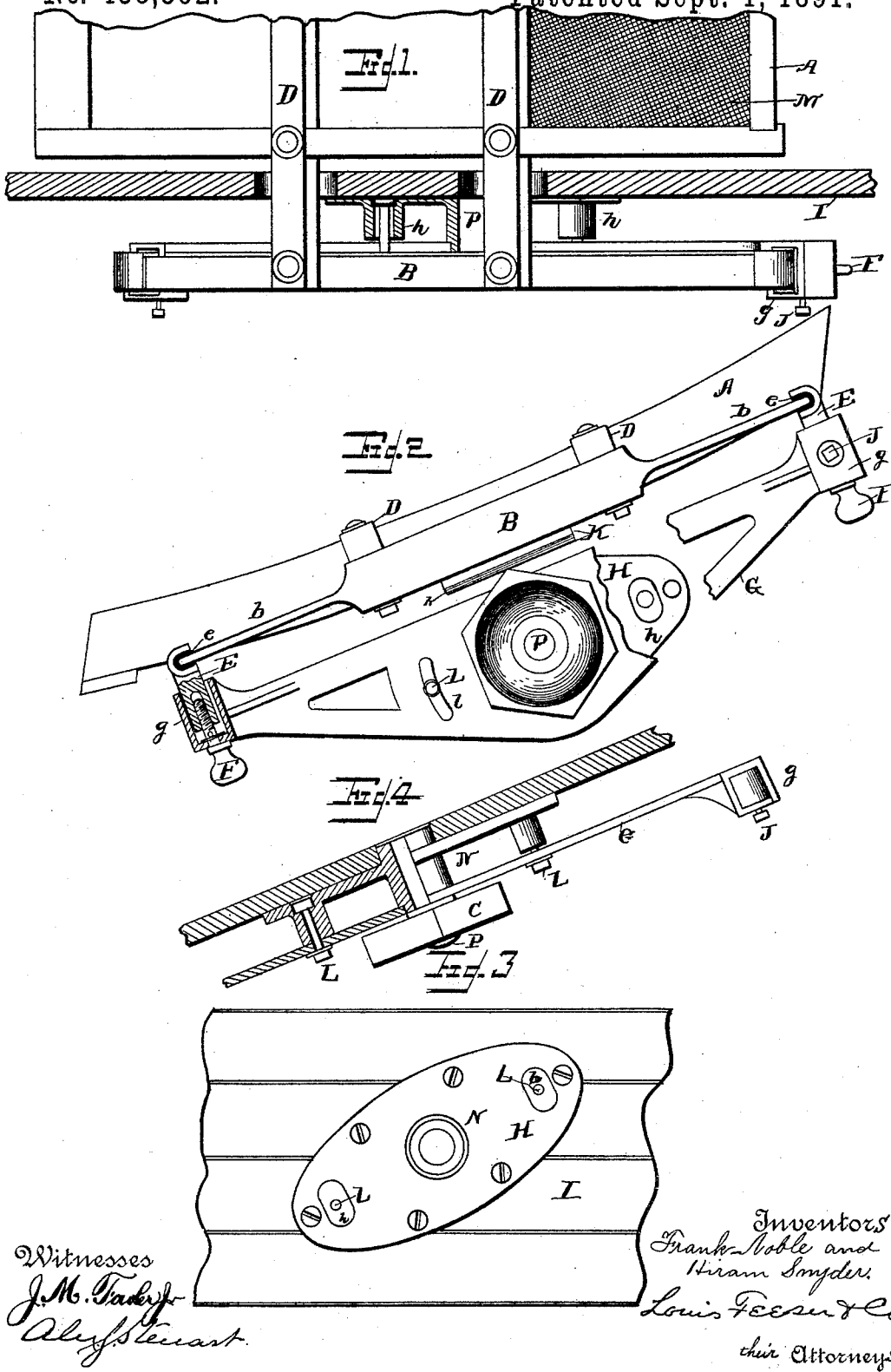


(No Model.)

F. NOBLE & H. SNYDER.
SCALPER AND GRADER.

No. 458,592.

Patented Sept. 1, 1891.



UNITED STATES PATENT OFFICE.

FRANK. NOBLE AND HIRAM SNYDER, OF MINNEAPOLIS, MINNESOTA.

SCALPER AND GRADER.

SPECIFICATION forming part of Letters Patent No. 458,592, dated September 1, 1891.

Application filed May 11, 1891. Serial No. 392,351. (No model.)

To all whom it may concern:

Be it known that we, FRANK. NOBLE and HIRAM SNYDER, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Scalpers and Graders; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention relates to that class of milling appliances known as "gravity scalpers, graders, and bolters"—such, for instance, as disclosed in the patent to Frank. Noble, No. 440,883, dated November 18, 1890, to which reference is made for a complete understanding of the scalper to which the present invention is applied.

The invention consists in certain novel details of construction and combinations and arrangements of parts in connection with the mounting of the screens and imparting necessary movements thereto, all as will now be described, and pointed out particularly in the appended claims.

Referring to the accompanying drawings, Figure 1 is a top plan view of one end of a screen, showing the mounting therefor, with the casing and part of the mounting in section. Fig. 2 is an end elevation of the same with the casing omitted and portions shown in section to disclose internal and underlying parts. Fig. 3 is an elevation of the base or supporting plate. Fig. 4 is a detail of the swing or rock bar partially broken away.

Like letters of reference in the several figures indicate the same parts.

The letter A indicates the frame of the screen, and M the screen itself, said parts being of any desired construction, preferably, however, curved, as described in the before-mentioned patent.

D D are two cross-bars, upon which the sieve or screen is mounted, said bars in turn being connected rigidly to the enlarged central portion of the spring-bars B at each side of the scalper. The spring bars or supports B may be constructed of any suitable material, preferably wood, and at each end have the reduced or flexible portions *b*, which yield sufficiently to permit of the bodily movement

of the screen, as will presently appear. Each end of the spring support or bar is held in an adjustable carriage E, and the carriages for each bar are supported upon a swing or rock bar G, pivoted centrally upon a pivot or bearing N, mounted on the casing I, (see Fig. 4.) said bearing also serving as the bearing for the shaft P for the knocker. The bearing N is preferably in the form of an enlargement on a base-plate H, adapted to be secured to the casing by screws and carrying at each end studs or extensions *h*, against which the rock-bar rests and to which it is clamped in adjusted position by the bolts and nuts L, passing through arch-shaped slots *l* in the said bar.

On the shaft P is mounted a hexagonal or other shaped cam or knocker adapted to come in contact with the wear-plate K on the under surface of the spring-bar, in order to impart a tremulous motion to the screen, such wear-plate being faced with rawhide or similar substance, (indicated by the dark portion lettered *k*.)

The adjustable carriages E, before referred to as the supports for the spring-bars, are mounted to slide in boxes *g* on the ends of the rock-bars and are adjusted in said boxes by the thumb-screws F, small set-screws J being provided to hold the same in adjusted position. The connections between the ends of the spring-bars and carriages are formed by clamps on the carriages, embracing said ends and lined with rubber *e*, as shown.

It will be seen that in the present instance the enlarged central portion of the spring-bars is elongated sufficiently to accommodate two cross-bars, one at each end of the enlarged portion, in order to prevent any oscillation of the sieve, while at the same time the vibration straight forward and back is unimpeded, and by connecting the whole structure and mounting it on a central pivot the inclination of the sieve may be varied without affecting the relative positions of the cam and spring-bar or wear-plate. When it is desired to vary or adjust the vibration of the screen or the effect of the cam thereon, it is easily accomplished by moving the adjustable carriages, as before explained, so as to move the wear-plates nearer to or farther from the cam.

Scalpers constructed in accordance with this invention are found, by reason of these

simple and perfect adjustments, to have a maximum efficiency under all circumstances, it being within the skill of any ordinary attendant to make the necessary adjustments for 5 different grades of work or styles of screens.

Having thus described our invention, what we claim as new is—

1. In a separator, the combination, with the screen and spring-support on which the same 10 is mounted, of the pivoted rock-bar carrying said spring-support, substantially as described.

2. In a separator, the combination, with the screen and spring-support on which said 15 screen is centrally mounted, of the pivoted rock-bar connected to both ends of said spring-support, substantially as described.

3. In a separator, the combination, with the screen and spring-support on which said 20 screen is centrally mounted, of the pivoted rock-bar carrying said spring-support, and adjustable connections between the ends of the spring-support and rock-bar, substantially as described.

4. In a separator, the combination, with the screen and spring-support therefor mounted on a pivoted rock-bar, of a knocker for the 25 screen mounted on a center coincident with the pivot of the rock-bar, whereby the inclination of the screen may be changed without altering the positions of the knocker with relation thereto, substantially as described. 30

5. In a separator, the combination, with the screen, spring-support on which said screen 35 is centrally mounted, and pivoted rock-bar connected to said spring-support at both ends, of the shaft passing through the pivot of the rock-bar, and the cam on said shaft for vibrating the screen, substantially as described.

6. In a separator, the combination, with the screen, spring-support on which it is mounted, and adjustable rock-bar, of the carriages 40 connected to the ends of the spring-supports and adjustably mounted in the rock-bar, substantially as described.

7. In a separator, the combination, with the screen, spring-supports on which it is mounted, and adjustable bars having the sockets at each end, of the carriages carrying the spring-supports fitting in said sockets, and the screws 50 for adjusting the position of the carriages within the sockets, substantially as described.

8. In a separator, the combination, with the screen, spring-supports on which it is centrally mounted, the centrally-pivoted adjustable rock-bars, and the adjustable carriages 55 connecting the end of the spring-support and rock-bars, of the knocker pivoted on a center coincident with the pivot of the rock-bars, and the wear-plate on the under side of the 60 spring-support, with which the knocker cooperates, substantially as described.

9. In a separator, the combination, with the screen, the two cross-bars connected thereto, and the spring-support to which said cross-bars are connected, of the adjustable rock-bar 65 connected to both ends of the spring-support, and the knocker engaging the spring-support between the cross-bars, substantially as described. 70

10. In a separator, the combination, with the screen, the spring-support on which it is mounted, and the rock-bar connected to both ends of said spring-support, of the base-plate 75 having the central stud-bearing on which the rock-bar is pivoted, and the projections at each side, the bolts passing through slots for holding the rock-bar in adjusted position, and the knocker mounted on a shaft journaled in the bearing in the base-plate, substantially 80 as described.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

FRANK. NOBLE.
HIRAM SNYDER.

Witnesses:

LOUIS FEESER, Jr.,
P. W. FARICY.