

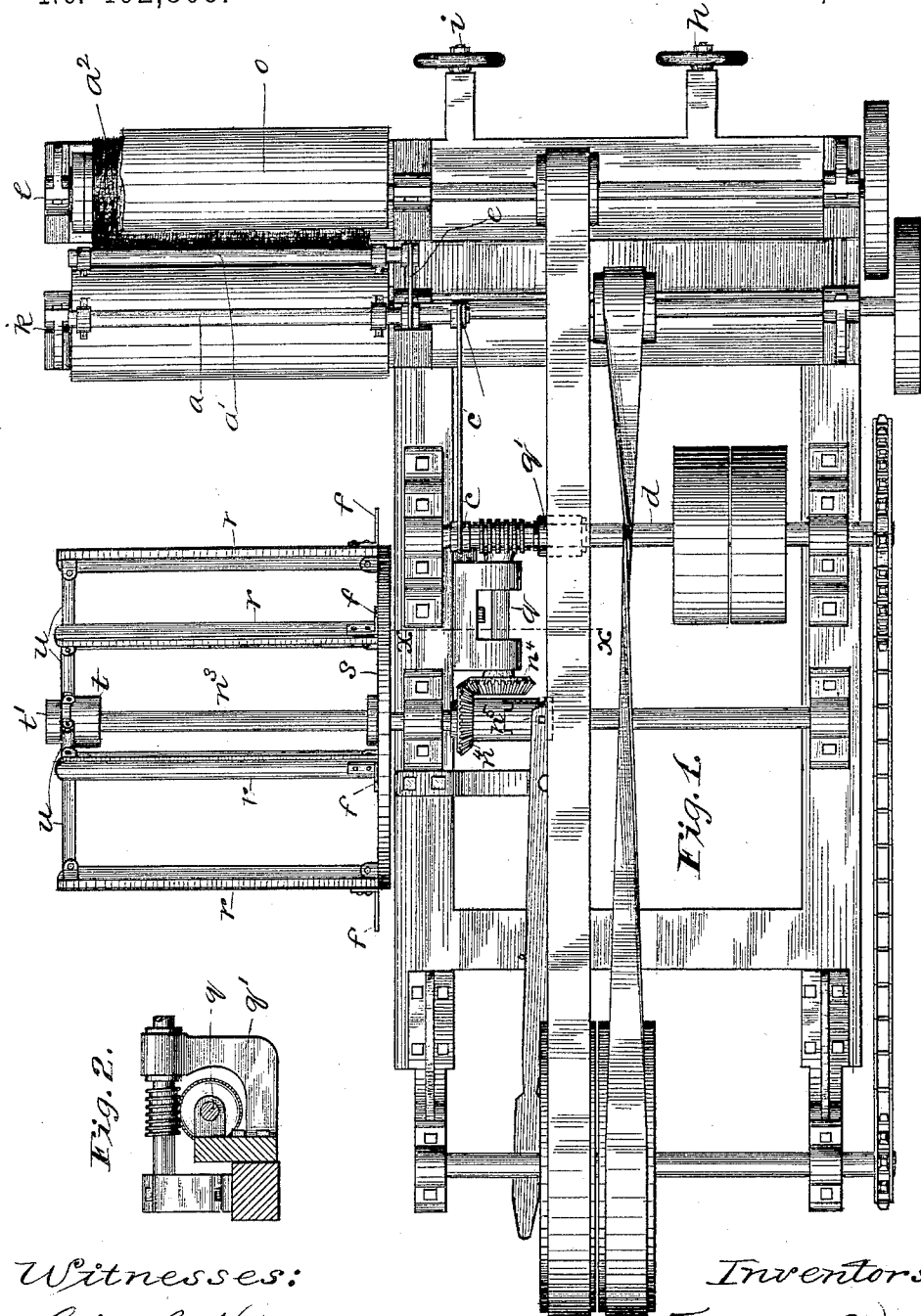
(No Model.)

4 Sheets—Sheet 1.

F. E. DAVIS & O. ABERLE.
MACHINE FOR CLEANING INTESTINES.

No. 462,809.

Patented Nov. 10, 1891.



Witnesses:
Charles Hawley.
Albert H. Parker

Inventors:
Ferdinand E. Davis.
Oscar Aberle
By George P. Barton
Attorney.

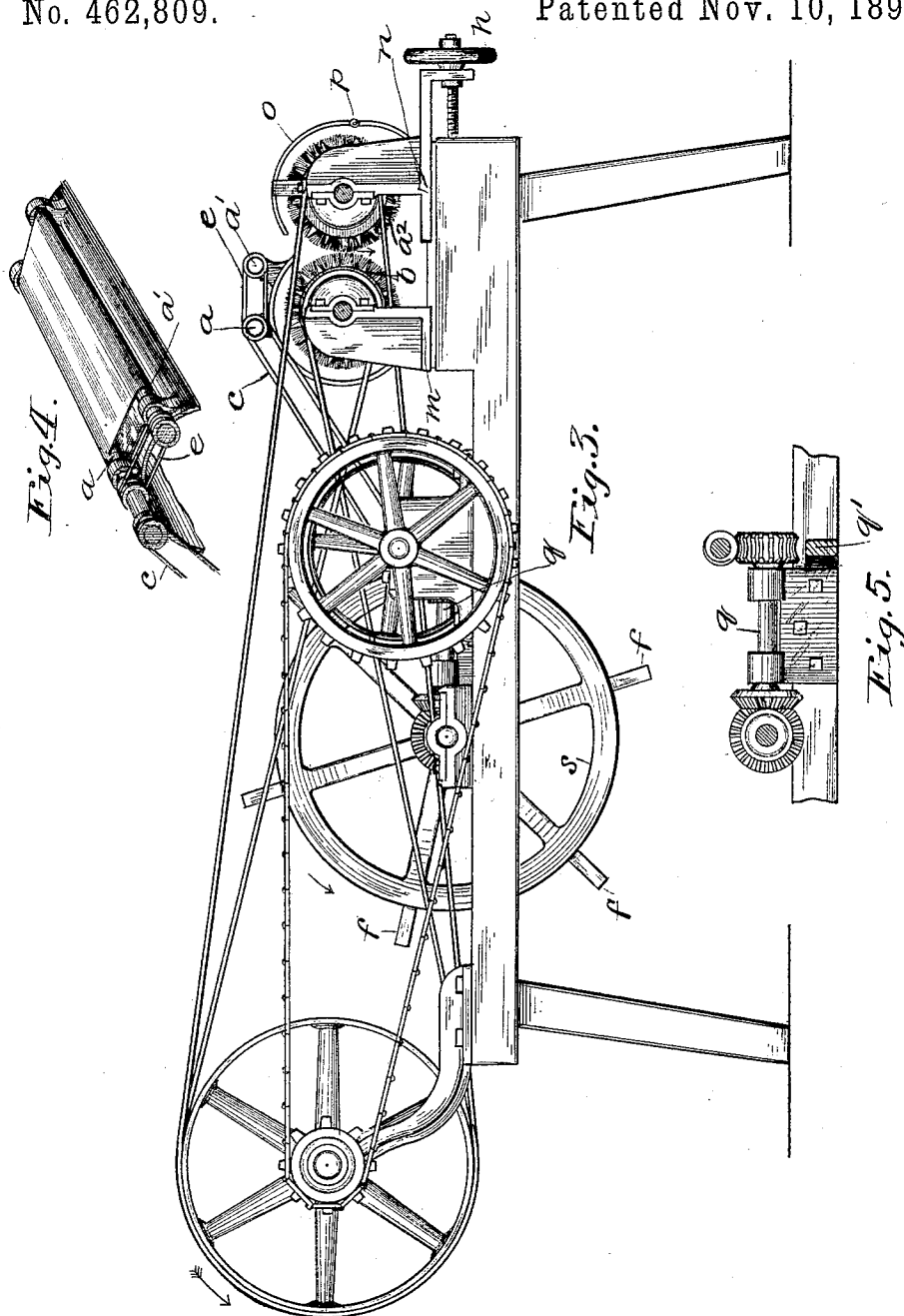
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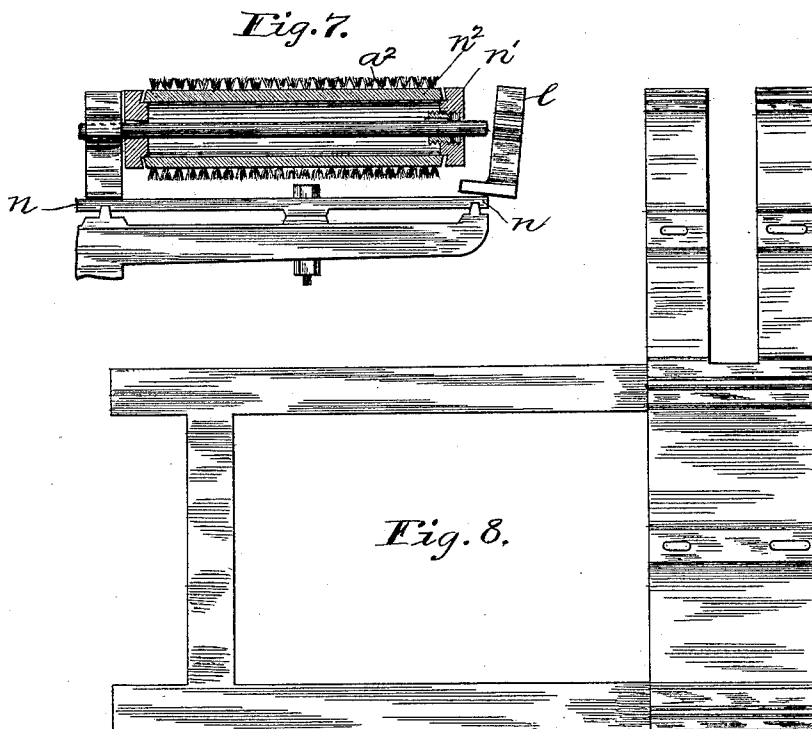
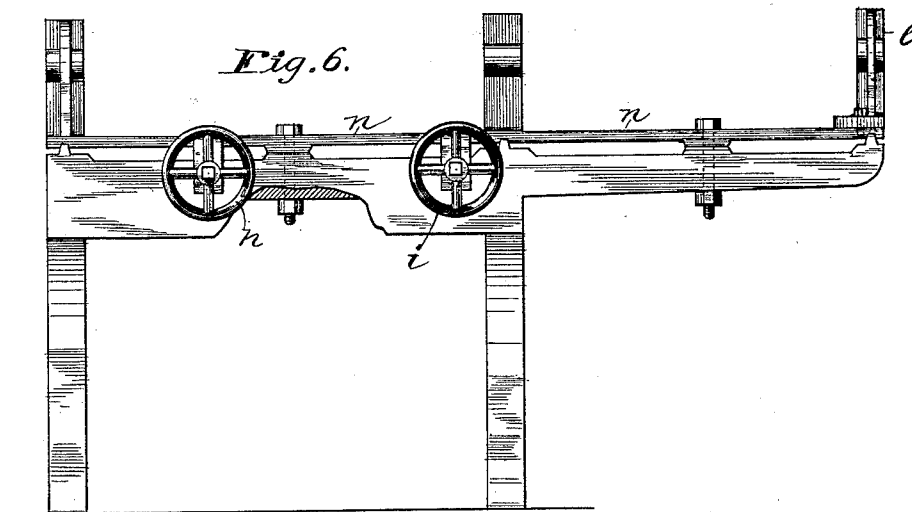
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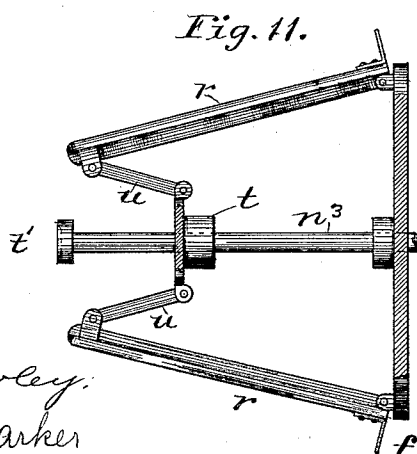
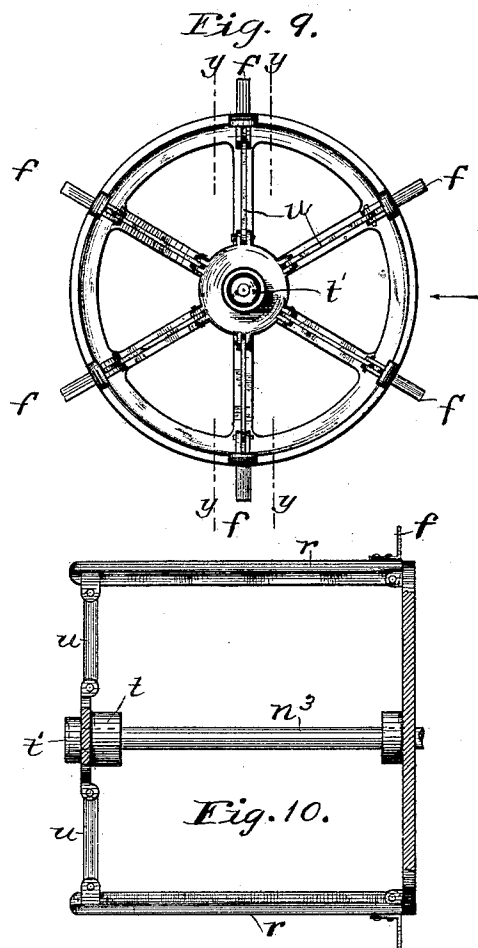
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UNITED STATES PATENT OFFICE.

FERDINAND E. DAVIS AND OSCAR ABERLE, OF CHICAGO, ILLINOIS, ASSIGN-
ORS TO SIGMUND OPPENHEIMER, OF NEW YORK, N. Y.

MACHINE FOR CLEANING INTESTINES.

SPECIFICATION forming part of Letters Patent No. 462,809, dated November 10, 1891.

Application filed July 13, 1888. Serial No. 279,798. (No model.)

To all whom it may concern:

Be it known that we, FERDINAND E. DAVIS and OSCAR ABERLE, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Machines for Cleaning Intestines, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

In Letters Patent of the United States No. 363,370, dated May 24, 1887, we have described and patented a machine for cleaning intestines, which patent discloses the prior existing state of the art in this department of industry. While said machine may be usefully employed for the purpose for which it was designed, certain defects were found to exist therein, which we have remedied by our invention described and claimed herein.

Our invention, briefly stated, consists, first, in a driven roll or rolls or other suitable carrier placed between the revolving brushes and the reel of the machine, so that the stock as it passes up between the brushes and toward the reel may be supported and injury to the stock by breaking prevented; second, in ready means of renewing the revolving brushes and in adjusting their distance apart and at the same time maintaining them parallel to one another; third, in radially-projecting arms upon the reel, on the side thereof next the machine, for attaching the stock to the reel and for preventing the stock from getting between the reel and the frame of the machine; fourth, in a support upon the shaft which carries the collapsible reel, by means of which the reel is held in proper position when the machine is in operation; fifth, in a tie-bearing between the main shaft and the shaft of the arm-gear which operates the reel.

Our invention is illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a machine for cleaning intestines, embodying our improvements. Fig. 2 is a detailed view of the tie-bearing upon section line X X of Fig. 1. Fig. 3 is a side elevation of the machine embodying our improvements. Fig. 4 is a view of the driven carrier-rolls detached provided

with an endless apron. Fig. 5 is a detailed view of the worm-gear and beveled gear. Fig. 6 is a front elevation showing the means of moving the brushes and adjusting their distance apart. Fig. 7 is a detailed view of a brush and its removable bearing. Fig. 8 is a plan of the bed of the machine. Fig. 9 is an end view of the reel. Fig. 10 is a side view showing the portion of the reel included between lines *yy yy* of Fig. 9 in the direction indicated by the arrow. Fig. 11 is a view showing the reel collapsed.

Like parts are indicated by similar letters of reference throughout the different figures.

The carrier mechanism consists, preferably, of two driven rolls *a a'*, placed above the rear revolving brush *b*. I have shown a belt *c*, which passes over a small fixed pulley on the main driving-shaft *d*, and a correspondingly fixed pulley upon the shaft of the roller *a*, which serves to drive said roller at the desired rate of speed. The other roll *a'* is connected with roll *a*, so as to be driven therewith and in the same direction, preferably by a belt *e*.

The stock at starting may be tied together and supported by a cord or string, which is passed in between the outer open ends of the brushes and then raised, so as to bring the ends of the intestines thus tied together up into position to be acted upon by the brushes. As the brush-cylinders revolve downwardly in opposite directions the stock is drawn by the cord between them over the driven carrier, a loop in the cord being carried back and placed over one of the radially-projecting arms *f* of the driven reel. The speed of the power-shaft may be, say, sixty revolutions a minute, that of the reel two revolutions a minute, that of the brushes twelve hundred revolutions a minute each, and that of the rolls *a a'* sixty revolutions a minute. The stock is thus drawn up between the brushes by the action of the driven carrier and the reel and wound upon the reel. A simple idler was found insufficient to guide the stock from the brush to the reel. We found, however, that by using a driven-carrier device, as herein shown, the stock is prevented from breaking between the brushes and the reel to any injurious extent. The number of driven reels

may be increased, if it is found desirable, and the means of driving them may be varied at will. We have in some instances found an endless apron passing over the rolls and carried thereby a desirable form of carrier. This form is illustrated in Fig. 4 of the drawings.

As shown in Figs. 1, 3, and 6, the bar n , which carries the front brush a^2 , may be adjusted by means of the screws h to bring the brushes at proper distance from one another from time to time, as circumstances may require, while they are at the same time maintained substantially parallel.

Our machine is designed especially for cleaning the intestines of beeves, which intestines consist of three distinct sizes. The brushes must therefore be adjustable, as above described. The posts k l , which form the supports of the outer bearings of the brush-shafts, respectively, are screwed to the movable supporting-bars m n , as shown, and may be readily disconnected therefrom. In Fig. 7 the brush a^2 is shown in detail. Its post l is shown detached from the movable supporting-bar n . This post l is first removed, and then the cap n' is loosened, as shown, and then slipped off from the shaft. The brush-cylinder n^2 may then be removed and replaced by a new one, whereupon the cap n' is replaced and screwed up tightly against the new brush-cylinder. Thus it will be seen that by removing either of the said posts the corresponding brush-cylinder may be readily removed and a new brush-cylinder substituted therefor without removing the shaft, as was heretofore necessary in this class of machine.

As shown more clearly in Fig. 1, the reel is mounted on the shaft n^3 , which shaft is driven by the bevel-gear n^4 , connected with the main shaft. By means of the clutch n^5 the shaft may be thrown out of engagement with the gear, thus stopping the reel and allowing the stock to be removed without stopping the machine. The machine may thus be kept in operation, while at the same time the stock is being removed from the reel; otherwise it would be necessary to stop the machine once in about five minutes, which would result in the loss of the time of two men, who would have to wait each time while the stock was being removed from the reel by the third man.

The guard o , which covers the outer brush a^2 , is hinged at p , as shown in Fig. 3, so that it may be readily thrown back to expose said brush, in order that the fat and other substances which may accumulate thereon may be removed.

As shown most clearly in Figs. 1 and 2, the shaft q , which is driven by a worm upon the main shaft, is held in proper position with respect to the main shaft by means of a tie-bearing q' .

The collapsible reel shown in Figs. 1, 3, 9, 10, and 11 is driven by suitable gearing con-

nected with the main shaft. The radial arms f project from the arms r at the ends of said arms r , which are pivoted to the head or supporting-disk s . The stock may be secured to these radial arms by a string or otherwise. The collar t is free to move upon the shaft. The connecting-arms u are pivoted about the flange or ring upon the collar t and to their corresponding arms r of the reel. By simply pressing in upon the collar the reel may be collapsed, the collar t being moved inwardly from the stop t' upon the shaft, as shown in Fig. 11.

Our invention admits of various modifications, which will readily suggest themselves to those skilled in the art. We therefore do not limit ourselves to the constructions shown.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination, with the revolving brushes, of a driven carrier placed above the brush nearest the reel and the reel driven in the same direction as the carrier, whereby the stock which has been acted upon by the brushes is carried to the reel and wound thereon, substantially as and for the purpose specified.

2. The combination, with the two parallel adjustable cylinder-brushes, of a hinged guard placed over the outer brush and a carrier placed above the inner brush, and a reel for receiving the stock carried thereto after passing between and being acted upon by the brushes, substantially as and for the purpose specified.

3. The combination, with cylinder-brushes, of the removable outer supports carrying the bearings of the shafts of said brushes, whereby on removing either support the corresponding brush-cylinder may be removed without removing its shaft, substantially as and for the purpose specified.

4. The combination, with the brushes driven in opposite directions and placed parallel to one another, of the driven carrier and a driven reel, said carrier and reel being driven in the same direction, whereby the stock may be drawn up through the brushes and wound upon the reel, substantially as and for the purpose specified.

5. The combination, with the driven collapsible reel, the shaft of the gear mechanism which drives the reel being connected with the main driving-shaft by a tie-bearing, of rotary brushes driven downwardly in opposite directions, and the driven carrier placed above the brush nearest the reel, whereby the brushes, the carrier, and the reel are driven at the desired rates of speed to carry the stock between the brushes and over the carrier to the reel, substantially as and for the purposes specified.

6. The combination, with rotary brushes and the driven carrier, of the driven collapsi-

ble reel provided with the radially-projecting arms placed upon the horizontal arms of the reel at the ends which are pivoted to the head or disk of the reel, whereby the stock is drawn through the brushes and wound upon the reel and prevented from clogging the reel, substantially as and for the purpose specified.

7. The combination, with the revolving brushes, of a driven reel and a driven carrier placed between the reel and the brushes, whereby the stock which has been acted upon by the brushes is carried upon the carrier to the reel and wound thereon, substantially as and for the purpose specified.

8. The combination, with two parallel adjustable cylinder-brushes, said brushes being each provided with removable brush-cylinders, of removable posts which carry the outer bearings of said brushes, respectively, whereby on removing either of said posts the cylinder of the corresponding brush may be re-

newed, substantially as and for the purpose specified.

9. The combination, with the brushes, of a reel for receiving the stock after the stock has been acted upon by the brushes, said reel consisting in the driven shaft, the head or disk rigidly connected therewith, the arms *r*, pivoted to said head or disk and provided with radial arms for attaching the stock to the reel near the disk, the collar *t* upon the shaft and the connecting-arms, one between each arm *r* and said collar, and the stop *t'* upon the shaft for limiting the movement of the collar thereon, substantially as shown and described.

In witness whereof we hereunto subscribe our names this 7th day of July, A. D. 1888.

FERDINAND E. DAVIS.
OSCAR ABERLE.

Witnesses:

GEORGE P. BARTON,
CHAS. G. HAWLEY.