H. E. Towle,

Oil-Collecting Pump.

No. 55,178. Patented May 29, 1866.

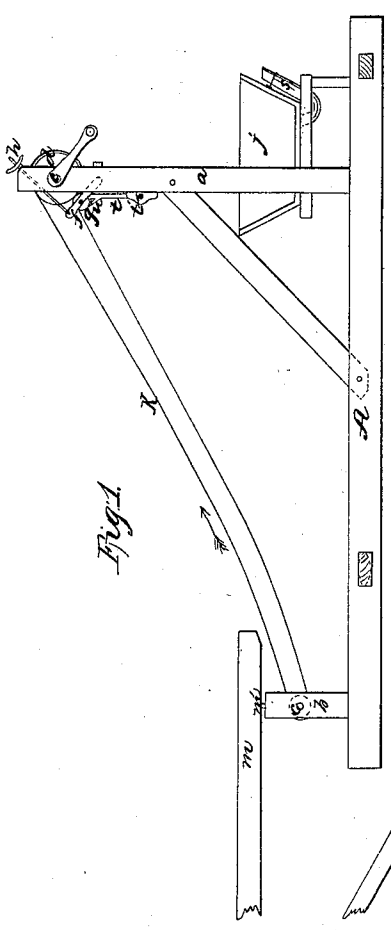


Fig. 1.

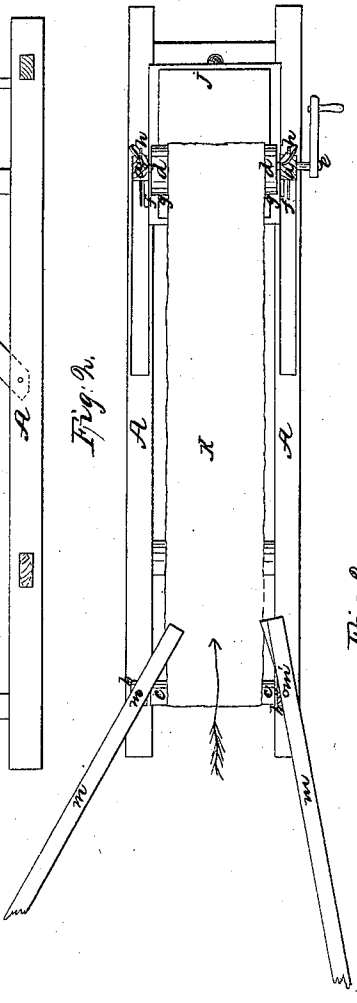


Fig. 2.

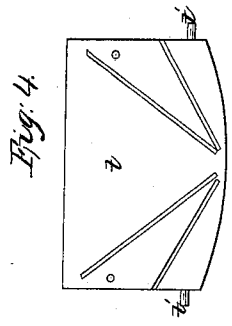


Fig. 4.

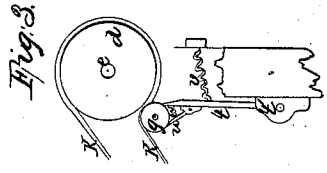


Fig. 3.

Witnesses.
John M. Bancroft
Lewis Ringman

Inventor.
Hamilton E. Towle

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HAMILTON E. TOWLE, OF NEW YORK, N. Y.

IMPROVEMENT IN APPARATUS FOR COLLECTING FLOATING OIL FROM STREAMS.

Specification forming part of Letters Patent No. **55,178**, dated May 29, 1866.

To all whom it may concern:

Be it known that I, HAMILTON E. TOWLE, of the city, county, and State of New York, have invented a new and useful Machine for Collecting Floating Petroleum and other Fluids; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of the machine. Fig. 2 is a plan of the same. Fig. 3 is a vertical cross section of the driving and squeezing rollers, showing also the action of the swinging apron upon the same. Fig. 4 is a front elevation of the swinging apron.

Similar letters of reference indicate corresponding parts in the several figures.

The main object of this invention is the collection of the petroleum from the surface of streams of water on which it floats.

My invention relates to that class of machines which collect floating petroleum by means of booms and endless inclined belts moving on rollers of different altitudes, from which belts the oil is expressed by means of auxiliary or squeezing rollers; and it consists in the combination, with the squeezing-roller, of aprons or scrapers, by means of which the oil may be more effectually collected; and also in the arrangement, as hereinafter described, of the squeezing-roller so that its pressure upon the endless belt may be graduated and regulated.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation when applied to a machine of the character above mentioned.

A is a frame-work, of wood or other suitable material, for the purpose of sustaining the posts *a a* and *b b*, which posts serve to support the rollers and other working parts of the apparatus.

The posts *b b*, Figs. 1 and 2, support the lower roller, *c*. The posts *a a* support the upper or driving roller, *d*, which is operated by a crank or driving-wheel on its shaft *e*. The arrangement of these two rollers gives an inclination to the endless belt or apron which is carried by them. The posts *a a* also support, by means of two levers, *f*, the squeezing-roller *g*, the pressure of which is graduated at will by means of the hinged screw-bolt and nut *h*.

A swinging apron, *t*, Figs. 3 and 4, is hung to the posts *a a* by horizontal pivots *t'* parallel with its lower edge, and its upper edge, formed to act as a scraper, is pressed against the squeezing-roller *g* by means of a spring, *v*, or its equivalent. The swinging apron also carries upon it another scraper, *u*, the upper edge of which is also kept against the squeezing-roller *g* by means of a second spring, *w*. The position of the squeezing-roller is back of the lower point of the upper roller, *d*. The object of such arrangement is to allow the expressed fluid to fall from the moving parts with as much freedom as possible.

The posts *a a* also support the receiving-tank or reservoir *j*, so placed as to catch all the fluid expressed from the endless belt or apron *k*. This apron may be made of cloth, felt, or other woven or fibrous material.

The oil or other fluid, when floating on a running stream, is guided by booms *m m*, placed diagonally from each other, toward and against the endless apron *k*, as shown in Fig. 2. The booms lie upon the surface of the water or other sustaining-fluid. They may be secured in any convenient way or at any angle; but I prefer to support the ends next to the machine upon vertical axes *m'*, to allow any hasty change in their position that may be desirable in order to avoid an approaching object.

To operate this machine it is immersed in the fluid on which the oil or fluid to be collected floats to such an extent that the lower roller, *c*, is entirely or partially submerged or in close contact with the fluid to be collected, while at the same time the other rollers are sufficiently above the fluid surface to give ample space for securing the oil or fluid elevated. Motion is now given to the endless belt and rollers in the direction shown by the arrows on the drawings, which is such that the upper part of the belt moves upward and with the current. The fluid collected and carried up over the roller *d* upon the endless belt or apron and expressed therefrom by the squeezing-roller *g* is received upon the swinging apron *t*, and from it is allowed to fall into the reservoir below.

In the case of collecting oil floating upon

water, for example, I prefer to place a certain portion of the tank *j* below the surface of the water, the immersed portion of the depth of tank being to the whole depth of tank as the specific gravity of oil is to the specific gravity of water. An aperture is provided in the bottom of the tank of suitable size, for the purpose of letting such water as may unavoidably be collected escape by its own gravity, which it will do till the tank becomes filled with oil only, at which time the water which may have been collected with it will have escaped through the aperture referred to.

I attach to the aperture in the bottom of the tank an inverted siphon, *s*, reaching nearly to the surface of the water outside, by inspecting which it is immediately seen when all the water has been expelled by the accumulation of oil. This aperture may now be plugged, and the tank, which will be found to contain oil only, can be entirely emptied of its contents.

What I claim, and desire to secure by Letters Patent, is—

1. The combination, with the squeezing-roller of an apparatus constructed as herein described, of a swinging apron or scraper actuated by means of a spring or equivalent mechanism, and arranged and operating as and for the purposes herein set forth.

2. In combination with the squeezing-roller and swinging scraper, as described, the employment of a second scraper, arranged and operating as herein shown and set forth.

3. In combination with the squeezing-roller, the lever-arms in which it has its bearings and the rods or bolts by means of which the pressure of the roller may be regulated, the whole being constructed and arranged substantially as herein shown and described.

HAMILTON E. TOWLE.

Witnesses:
JOHN M. BANCROFT,
LEWIS KINGMAN.